a Technology Installation and Operation Plan developed in accordance with §125.95(b)(4)(ii) (for any design and construction technologies and/or operational measures) and/or a Restoration Plan developed in accordance with §125.95(b)(5) (for any restoration measures). The Technology Installation and Operation Plan must be designed to meet applicable performance standards in paragraph (b) of this section or alternative site-specific requirements developed pursuant to paragraph (a)(5) of this section. The Restoration Plan must be designed to achieve compliance with the applicable requirements in paragraph (c) of this section.

(2) During subsequent permit terms, if you selected and installed design and construction technologies and/or operational measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements of your Technology Installation and Operation Plan during the preceding permit term, you may request that compliance with the requirements of §125.94 during the following permit term be determined based on whether you remain in compliance with your Technology Installation and Operation Plan, revised in accordance with your adaptive management plan in §125.95(b)(4)(ii)(C) if applicable performance standards are not being met. Each request and approval of a Technology Installation and Operation Plan shall be limited to one permit term.

(3) During subsequent permit terms, if you selected and installed restoration measures and have been in compliance with the construction, operational, maintenance, monitoring, and adaptive management requirements in your Restoration Plan during the preceding permit term, you may request that compliance with the requirements of this section during the following permit term be determined based on whether you remain in compliance with your Restoration Plan, revised in accordance with your adaptive management plan in §125.95(b)(5)(v) if applicable performance standards are not being met. Each request and approval of a Restoration Plan shall be limited to one permit term.

(e) *More stringent standards.* The Director may establish more stringent requirements as best technology available for minimizing adverse environmental impact if the Director determines that your compliance with the applicable requirements of this section would not meet the requirements of applicable State and Tribal law, or other Federal law.

(f) *Nuclear facilities.* If you demonstrate to the Director based on consultation with the Nuclear Regulatory Commission that compliance with this subpart would result in a conflict with a safety requirement established by the Commission, the Director must make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Nuclear Regulatory Commission's safety requirement.

§125.95 As an owner or operator of a Phase II existing facility, what must I collect and submit when I apply for my reissued NPDES permit?

(a)(1) You must submit to the Director the Proposal for Information Collection required in paragraph (b)(1) of this section prior to the start of information collection activities;

(2) You must submit to the Director the information required in 40 CFR 122.21(r)(2), (r)(3) and (r)(5) and any applicable portions of the Comprehensive Demonstration Study (Study), except for the Proposal for Information Collection required by paragraph (b)(1) of this section; and

(i) You must submit your NPDES permit application in accordance with the time frames specified in 40 CFR 122.21(d)(2).

(ii) If your existing permit expires before July 9, 2008, you may request that the Director establish a schedule for you to submit the information required by this section as expeditiously as practicable, but not later than January 7, 2008. Between the time your existing permit expires and the time an NPDES permit containing requirements consistent with this subpart is issued to your facility, the best technology available to minimize adverse environmental impact will continue to

be determined based on the Director's best professional judgment.

(3) In subsequent permit terms, the Director may approve a request to reduce the information required to be submitted in your permit application on the cooling water intake structure(s) and the source waterbody, if conditions at your facility and in the waterbody remain substantially unchanged since your previous application. You must submit your request for reduced cooling water intake structure and waterbody application information to the Director at least one year prior to the expiration of the permit. Your request must identify each required information item in §122.21(r) and this section that you determine has not substantially changed since the previous permit application and the basis for your determination.

(b) *Comprehensive Demonstration Study*. The purpose of the Comprehensive Demonstration Study (The Study) is to characterize impingement mortality and entrainment, to describe the operation of your cooling water intake structures, and to confirm that the technologies, operational measures, and/or restoration measures you have selected and installed, or will install, at your facility meet the applicable requirements of §125.94. All facilities except those that have met the applicable requirements in accordance with §§125.94(a)(1)(i), 125.94(a)(1)(ii), and 125.94(a)(4) must submit all applicable portions of the Comprehensive Demonstration Study to the Director in accordance with paragraph (a) of this section. Facilities that meet the requirements in §125.94(a)(1)(i) by reducing their flow commensurate with a closed-cycle, recirculating system are not required to submit a Comprehensive Demonstration Study. Facilities that meet the requirements in §125.94(a)(1)(ii) by reducing their design intake velocity to 0.5 ft/sec or less are required to submit a Study only for the entrainment requirements, if applicable. Facilities that meet the requirements in §125.94(a)(4) and have installed and properly operate and maintain an approved design and construction technology (in accordance with §125.99) are required to submit only the Technology Installation and Operation Plan in paragraph (b)(4) of this section and the Verification Monitoring Plan in paragraph (b)(7) of this section. Facilities that are required to meet only impingement mortality performance standards in §125.94(b)(1) are required to submit only a Study for the impingement mortality reduction requirements. The Comprehensive Demonstration Study must include:

(1) *Proposal For Information Collection*. You must submit to the Director for review and comment a description of the information you will use to support your Study. The Proposal for Information must be submitted prior to the start of information collection activities, but you may initiate such activities prior to receiving comment from the Director. The proposal must include:

(i) A description of the proposed and/or implemented technologies, operational measures, and/or restoration measures to be evaluated in the Study;

(ii) A list and description of any historical studies characterizing impingement mortality and entrainment and/or the physical and biological conditions in the vicinity of the cooling water intake structures and their relevance to this proposed Study. If you propose to use existing data, you must demonstrate the extent to which the data are representative of current conditions and that the data were collected using appropriate quality assurance/quality control procedures;

(iii) A summary of any past or ongoing consultations with appropriate Federal, State, and Tribal fish and wildlife agencies that are relevant to this Study and a copy of written comments received as a result of such consultations; and

(iv) A sampling plan for any new field studies you propose to conduct in order to ensure that you have sufficient data to develop a scientifically valid estimate of impingement mortality and entrainment at your site. The sampling plan must document all methods and quality assurance/quality control procedures for sampling and data analysis. The sampling and data analysis methods you propose must be appropriate for a quantitative survey and include consideration of the methods used in other studies performed in the source

waterbody. The sampling plan must include a description of the study area (including the area of influence of the cooling water intake structure(s)), and provide a taxonomic identification of the sampled or evaluated biological assemblages (including all life stages of fish and shellfish).

(2) *Source waterbody flow information.* You must submit to the Director the following source waterbody flow information:

(i) If your cooling water intake structure is located in a freshwater river or stream, you must provide the annual mean flow of the waterbody and any supporting documentation and engineering calculations to support your analysis of whether your design intake flow is greater than five percent of the mean annual flow of the river or stream for purposes of determining applicable performance standards under paragraph (b) of this section. Representative historical data (from a period of time up to 10 years, if available) must be used; and

(ii) If your cooling water intake structure is located in a lake (other than one of the Great Lakes) or a reservoir and you propose to increase its design intake flow, you must provide a description of the thermal stratification in the waterbody, and any supporting documentation and engineering calculations to show that the total design intake flow after the increase will not disrupt the natural thermal stratification and turnover pattern in a way that adversely impacts fisheries, including the results of any consultations with Federal, State, or Tribal fish and wildlife management agencies.

(3) *Impingement Mortality and/or Entrainment Characterization Study.* You must submit to the Director an Impingement Mortality and/or Entrainment Characterization Study whose purpose is to provide information to support the development of a calculation baseline for evaluating impingement mortality and entrainment and to characterize current impingement mortality and entrainment. The Impingement Mortality and/or Entrainment Characterization Study must include the following, in sufficient detail to support development of the other elements of the Comprehensive Demonstration Study:

(i) Taxonomic identifications of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) that are in the vicinity of the cooling water intake structure(s) and are susceptible to impingement and entrainment;

(ii) A characterization of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(3)(i) of this section, including a description of the abundance and temporal and spatial characteristics in the vicinity of the cooling water intake structure(s), based on sufficient data to characterize annual, seasonal, and diel variations in impingement mortality and entrainment (*e.g.*, related to climate and weather differences, spawning, feeding and water column migration). These may include historical data that are representative of the current operation of your facility and of biological conditions at the site;

(iii) Documentation of the current impingement mortality and entrainment of all life stages of fish, shellfish, and any species protected under Federal, State, or Tribal Law (including threatened or endangered species) identified pursuant to paragraph (b)(3)(i) of this section and an estimate of impingement mortality and entrainment to be used as the calculation baseline. The documentation may include historical data that are representative of the current operation of your facility and of biological conditions at the site. Impingement mortality and entrainment samples to support the calculations required in paragraphs (b)(4)(i)(C) and (b)(5)(iii) of this section must be collected during periods of representative operational flows for the cooling water intake structure and the flows associated with the samples must be documented;

(4) *Technology and compliance assessment information*—(i) *Design and Construction Technology Plan.* If you choose to use design and construction technologies and/or operational measures,

in whole or in part to meet the requirements of §125.94(a)(2) or (3), you must submit a Design and Construction Technology Plan to the Director for review and approval. In the plan, you must provide the capacity utilization rate for your facility (or for individual intake structures where applicable, in accordance with §125.93) and provide supporting data (including the average annual net generation of the facility (in MWh) measured over a five year period (if available) of representative operating conditions and the total net capacity of the facility (in MW)) and underlying calculations. The plan must explain the technologies and/or operational measures you have in place and/or have selected to meet the requirements in §125.94. (Examples of potentially appropriate technologies may include, but are not limited to, wedgewire screens, fine mesh screens, fish handling and return systems, barrier nets, aquatic filter barrier systems, vertical and/or lateral relocation of the cooling water intake structure, and enlargement of the cooling water intake structure opening to reduce velocity. Examples of potentially appropriate operational measures may include, but are not limited to, seasonal shutdowns, reductions in flow, and continuous or more frequent rotation of traveling screens.) The plan must contain the following information:

(A) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed), including fish handling and return systems, that you have in place or will use to meet the requirements to reduce impingement mortality of those species expected to be most susceptible to impingement, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(B) A narrative description of the design and operation of all design and construction technologies and/or operational measures (existing and proposed) that you have in place or will use to meet the requirements to reduce entrainment of those species expected to be the most susceptible to entrainment, if applicable, and information that demonstrates the efficacy of the technologies and/or operational measures for those species;

(C) Calculations of the reduction in impingement mortality and entrainment of all life stages of fish and shellfish that would be achieved by the technologies and/or operational measures you have selected based on the Impingement Mortality and/or Entrainment Characterization Study in paragraph (b)(3) of this section. In determining compliance with any requirements to reduce impingement mortality or entrainment, you must assess the total reduction in impingement mortality and entrainment against the calculation baseline determined in accordance with paragraph (b)(3) of this section. Reductions in impingement mortality and entrainment from this calculation baseline as a result of any design and construction technologies and/or operational measures already implemented at your facility should be added to the reductions expected to be achieved by any additional design and/or construction technologies and operational measures that will be implemented, and any increases in fish and shellfish within the waterbody attributable to your restoration measures. Facilities that recirculate a portion of their flow, but do not reduce flow sufficiently to satisfy the compliance option in §125.94(a)(1)(i) may take into account the reduction in impingement mortality and entrainment associated with the reduction in flow when determining the net reduction associated with existing design and construction technologies and/or operational measures. This estimate must include a site-specific evaluation of the suitability of the technologies and/or operational measures based on the species that are found at the site, and may be determined based on representative studies (*i.e.*, studies that have been conducted at a similar facility's cooling water intake structures located in the same waterbody type with similar biological characteristics) and/or site-specific technology prototype or pilot studies; and

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the descriptions required by

paragraphs (b)(4)(i)(A) and (B) of this section.

(ii) *Technology Installation and Operation Plan*. If you choose the compliance alternative in §125.94(a)(2), (3), (4), or (5) and use design and construction technologies and/or operational measures in whole or in part to comply with the applicable requirements of §125.94, you must submit the following information with your application for review and approval by the Director:

(A) A schedule for the installation and maintenance of any new design and construction technologies. Any downtime of generating units to accommodate installation and/or maintenance of these technologies should be scheduled to coincide with otherwise necessary downtime (*e.g.*, for repair, overhaul, or routine maintenance of the generating units) to the extent practicable. Where additional downtime is required, you may coordinate scheduling of this downtime with the North American Electric Reliability Council and/or other generators in your area to ensure that impacts to reliability and supply are minimized;

(B) List of operational and other parameters to be monitored, and the location and frequency that you will monitor them;

(C) List of activities you will undertake to ensure to the degree practicable the efficacy of installed design and construction technologies and operational measures, and your schedule for implementing them;

(D) A schedule and methodology for assessing the efficacy of any installed design and construction technologies and operational measures in meeting applicable performance standards or site-specific requirements, including an adaptive management plan for revising design and construction technologies, operational measures, operation and maintenance requirements, and/or monitoring requirements if your assessment indicates that applicable performance standards or site-specific requirements are not being met; and

(E) If you choose the compliance alternative in §125.94(a)(4), documentation that the appropriate site conditions in §125.99(a) or (b) exist at your facility.

(5) *Restoration Plan*. If you propose to use restoration measures, in whole or in part, to meet the applicable requirements in §125.94, you must submit the following information with your application for review and approval by the Director. You must address species of concern identified in consultation with Federal, State, and Tribal fish and wildlife management agencies with responsibility for fisheries and wildlife potentially affected by your cooling water intake structure(s).

(i) A demonstration to the Director that you have evaluated the use of design and construction technologies and/or operational measures for your facility and an explanation of how you determined that restoration would be more feasible, cost-effective, or environmentally desirable;

(ii) A narrative description of the design and operation of all restoration measures (existing and proposed) that you have in place or will use to produce fish and shellfish;

(iii) Quantification of the ecological benefits of the proposed restoration measures. You must use information from the Impingement Mortality and/or Entrainment Characterization Study required in paragraph (b)(3) of this section, and any other available and appropriate information, to estimate the reduction in fish and shellfish impingement mortality and/or entrainment that would be necessary for your facility to comply with §125.94(c)(2). You must then calculate the production of fish and shellfish that you will achieve with the restoration measures you will or have already installed. You must include a discussion of the nature and magnitude of uncertainty associated with the performance of these restoration measures. You must also include a discussion of the time frame within which these ecological benefits are expected to accrue;

(iv) Design calculations, drawings, and estimates to document that your proposed restoration measures in combination with design and construction technologies and/or operational measures, or alone, will meet the requirements of §125.94(c)(2). If the restoration measures address the same fish and

shellfish species identified in the Impingement Mortality and/or Entrainment Characterization Study (in-kind restoration), you must demonstrate that the restoration measures will produce a level of these fish and shellfish substantially similar to that which would result from meeting applicable performance standards in §125.94(b), or that they will satisfy site-specific requirements established pursuant to §125.94(a)(5). If the restoration measures address fish and shellfish species different from those identified in the Impingement Mortality and/or Entrainment Characterization Study (out-of-kind restoration), you must demonstrate that the restoration measures produce ecological benefits substantially similar to or greater than those that would be realized through in-kind restoration. Such a demonstration should be based on a watershed approach to restoration planning and consider applicable multi-agency watershed restoration plans, site-specific peer-reviewed ecological studies, and/or consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies.

(v) A plan utilizing an adaptive management method for implementing, maintaining, and demonstrating the efficacy of the restoration measures you have selected and for determining the extent to which the restoration measures, or the restoration measures in combination with design and construction technologies and operational measures, have met the applicable requirements of §125.94(c)(2). The plan must include:

(A) A monitoring plan that includes a list of the restoration parameters that will be monitored, the frequency at which you will monitor them, and success criteria for each parameter;

(B) A list of activities you will undertake to ensure the efficacy of the restoration measures, a description of the linkages between these activities and the items in paragraph (b)(5)(v)(A) of this section, and an implementation schedule; and

(C) A process for revising the Restoration Plan as new information, including monitoring data, becomes available, if the applicable requirements under §125.94(c)(2) are not being met.

(vi) A summary of any past or ongoing consultation with appropriate Federal, State, and Tribal fish and wildlife management agencies on your use of restoration measures including a copy of any written comments received as a result of such consultations;

(vii) If requested by the Director, a peer review of the items you submit for the Restoration Plan. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure(s). Peer reviewers must have appropriate qualifications (*e.g.*, in the fields of geology, engineering, and/or biology, etc.) depending upon the materials to be reviewed; and

(viii) A description of the information to be included in a bi-annual status report to the Director.

(6) *Information to support site-specific determination of best technology available for minimizing adverse environmental impact.* If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to §125.94(a)(5)(i) because of costs significantly greater than those considered by the Administrator for a facility like yours in establishing the applicable performance standards of §125.94(b), you are required to provide to the Director the information specified in paragraphs (b)(6)(i) and (b)(6)(iii) of this section. If you have requested a site-specific determination of best technology available for minimizing adverse environmental impact pursuant to §125.94(a)(5)(ii) because of costs significantly greater than the benefits of meeting the applicable performance standards of §125.94(b) at your facility, you must provide the information specified in paragraphs (b)(6)(i), (b)(6)(ii), and (b)(6)(iii) of this section:

(i) *Comprehensive Cost Evaluation Study.* You must perform and submit the results of a Comprehensive Cost Evaluation Study, that includes:

(A) Engineering cost estimates in sufficient detail to document the costs

of implementing design and construction technologies, operational measures, and/or restoration measures at your facility that would be needed to meet the applicable performance standards of § 125.94(b);

(B) A demonstration that the costs documented in paragraph (b)(6)(i)(A) of this section significantly exceed either those considered by the Administrator for a facility like yours in establishing the applicable performance standards or the benefits of meeting the applicable performance standards at your facility; and

(C) Engineering cost estimates in sufficient detail to document the costs of implementing the design and construction technologies, operational measures, and/or restoration measures in your Site-Specific Technology Plan developed in accordance with paragraph (b)(6)(iii) of this section.

(ii) *Benefits Valuation Study.* If you are seeking a site-specific determination of best technology available for minimizing adverse environmental impact because of costs significantly greater than the benefits of meeting the applicable performance standards of § 125.94(b) at your facility, you must use a comprehensive methodology to fully value the impacts of impingement mortality and entrainment at your site and the benefits achievable by meeting the applicable performance standards. In addition to the valuation estimates, the benefit study must include the following:

(A) A description of the methodology(ies) used to value commercial, recreational, and ecological benefits (including any non-use benefits, if applicable);

(B) Documentation of the basis for any assumptions and quantitative estimates. If you plan to use an entrainment survival rate other than zero, you must submit a determination of entrainment survival at your facility based on a study approved by the Director;

(C) An analysis of the effects of significant sources of uncertainty on the results of the study; and

(D) If requested by the Director, a peer review of the items you submit in the Benefits Valuation Study. You must choose the peer reviewers in consultation with the Director who may consult with EPA and Federal, State, and Tribal fish and wildlife management agencies with responsibility for fish and wildlife potentially affected by your cooling water intake structure. Peer reviewers must have appropriate qualifications depending upon the materials to be reviewed.

(E) A narrative description of any non-monetized benefits that would be realized at your site if you were to meet the applicable performance standards and a qualitative assessment of their magnitude and significance.

(iii) *Site-Specific Technology Plan.* Based on the results of the Comprehensive Cost Evaluation Study required by paragraph (b)(6)(i) of this section, and the Benefits Valuation Study required by paragraph (b)(6)(ii) of this section, if applicable, you must submit a Site-Specific Technology Plan to the Director for review and approval. The plan must contain the following information:

(A) A narrative description of the design and operation of all existing and proposed design and construction technologies, operational measures, and/or restoration measures that you have selected in accordance with § 125.94(a)(5);

(B) An engineering estimate of the efficacy of the proposed and/or implemented design and construction technologies or operational measures, and/or restoration measures. This estimate must include a site-specific evaluation of the suitability of the technologies or operational measures for reducing impingement mortality and/or entrainment (as applicable) of all life stages of fish and shellfish based on representative studies (*e.g.,* studies that have been conducted at cooling water intake structures located in the same waterbody type with similar biological characteristics) and, if applicable, site-specific technology prototype or pilot studies. If restoration measures will be used, you must provide a Restoration Plan that includes the elements described in paragraph (b)(5) of this section.

(C) A demonstration that the proposed and/or implemented design and construction technologies, operational measures, and/or restoration measures achieve an efficacy that is as close as

practicable to the applicable performance standards of §125.94(b) without resulting in costs significantly greater than either the costs considered by the Administrator for a facility like yours in establishing the applicable performance standards, or as appropriate, the benefits of complying with the applicable performance standards at your facility;

(D) Design and engineering calculations, drawings, and estimates prepared by a qualified professional to support the elements of the Plan.

(7) *Verification Monitoring Plan.* If you comply using compliance alternatives in §125.94(a)(2), (3), (4), or (5) using design and construction technologies and/or operational measures, you must submit a plan to conduct, at a minimum, two years of monitoring to verify the full-scale performance of the proposed or already implemented technologies and/or operational measures. The verification study must begin once the design and construction technologies and/or operational measures are installed and continue for a period of time that is sufficient to demonstrate to the Director whether the facility is meeting the applicable performance standards in §125.94(b) or site-specific requirements developed pursuant to §125.94(a)(5). The plan must provide the following:

(i) Description of the frequency and duration of monitoring, the parameters to be monitored, and the basis for determining the parameters and the frequency and duration for monitoring. The parameters selected and duration and frequency of monitoring must be consistent with any methodology for assessing success in meeting applicable performance standards in your Technology Installation and Operation Plan as required by paragraph (b)(4)(ii) of this section.

(ii) A proposal on how naturally moribund fish and shellfish that enter the cooling water intake structure would be identified and taken into account in assessing success in meeting the performance standards in §125.94(b).

(iii) A description of the information to be included in a bi-annual status report to the Director.

[69 FR 41683, July 9, 2004, as amended at 69 FR 47210, Aug. 4, 2004]

§125.96 As an owner or operator of a Phase II existing facility, what monitoring must I perform?

As an owner or operator of a Phase II existing facility, you must perform monitoring, as applicable, in accordance with the Technology Installation and Operation Plan required by §125.95(b)(4)(ii), the Restoration Plan required by §125.95(b)(5), the Verification Monitoring Plan required by §125.95(b)(7), and any additional monitoring specified by the Director to demonstrate compliance with the applicable requirements of §125.94.

§125.97 As an owner or operator of a Phase II existing facility, what records must I keep and what information must I report?

As an owner or operator of a Phase II existing facility you are required to keep records and report information and data to the Director as follows:

(a) You must keep records of all the data used to complete the permit application and show compliance with the requirements of §125.94, any supplemental information developed under §125.95, and any compliance monitoring data submitted under §125.96, for a period of at least three (3) years from date of permit issuance. The Director may require that these records be kept for a longer period.

(b) You must submit a status report to the Director for review every two years that includes appropriate monitoring data and other information as specified by the Director in accordance with §125.98(b)(5).

§125.98 As the Director, what must I do to comply with the requirements of this subpart?

(a) *Permit application.* As the Director, you must review materials submitted by the applicant under 40 CFR 122.21(r) and §125.95 before each permit renewal or reissuance.

(1) You must review and comment on the Proposal for Information Collection submitted by the facility in accordance with §125.95(a)(1). You are encouraged to provide comments expeditiously so that the permit applicant can make responsive modifications to its information gathering activities. If